AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in this application:

LISTING OF CLAIMS:

1-34. (Canceled)

35. (New) An isolated nucleotide sequence encoding a polypeptide consisting of the amino acid sequence defined by amino acids 1-378 of SEQ ID NO:1.

36. (New) An isolated nucleotide sequence encoding a polypeptide consisting of an amino acid sequence exhibiting at least 99% identity with the amino acid sequence defined by amino acids 1-378 of SEQ ID NO:1, wherein said polypeptide has the activity to biosynthesize theobromine using 7-methylxanthine as the substrate.

37. (New) An isolated nucleotide sequence consisting of nucleotides 1-1298 of SEQ ID NO:2.

38. (New) An isolated nucleotide sequence exhibiting at least 99% identity with the nucleotide sequence defined by nucleotides 1-1298 of SEQ ID NO:2, wherein said isolated nucleotide sequence encodes a polypeptide having the activity to biosynthesize theobromine using 7-methylxanthine as the substrate.

39. (New) A method for decreasing theobromine synthesis in a plant, said method comprising introducing the nucleotide sequence of any one of Claims 35-38 into a plant cell in antisense orientation, wherein expression of said nucleotide sequence in antisense orientation in said plant results in a decrease in theobromine synthesis.

40. (New) A transformed plant produced using the method of Claim 39.

41. (New) The plant according to Claim 40, wherein said plant is selected from the group consisting of Coffea arabica, Correa canephora, Coffea liberica, and Coffea dewevrei.

42. (New) A seed obtained from the transformed plant according to Claim 40, wherein said seed contains said nucleotide sequence.

43. (New) A seed obtained from the transformed plant according to Claim 41, wherein said seed contains said nucleotide sequence.

44. (New) A method for decreasing theobromine synthesis in a plant, said method comprising introducing into a plant cell double-stranded RNA comprising a nucleotide sequence according to any one of Claims 35-38.

45. (New) A transformed plant produced using the method of Claim 44.

46. (New) The plant according to Claim 45, wherein said plant is selected from the group consisting of Coffea arabica, Correa canephora, Coffea liberica, and Coffea dewevrei.

47. (New) A seed obtained from the transformed plant according to Claim 45, wherein said seed contains said nucleotide sequence.

48. (New) A seed obtained from the transformed plant according to Claim 46, wherein said seed contains said nucleotide sequence

49. (New) A method for decreasing theobromine synthesis in a plant, said method comprising introducing into a plant cell two or more copies of the nucleotide sequence according to any one of Claims 35-38, wherein expression of said nucleotide sequence is co-suppressed.

50. (New) A transformed plant produced using the method of Claim 49.

51. (New) The plant according to Claim 50, wherein said plant is selected from the group consisting of Coffea arabica, Correa canephora, Coffea liberica, and Coffea dewevrei.

52. (New) A seed obtained from the transformed plant according to Claim 50, wherein said seed contains said nucleotide sequence.

53. (New) A seed obtained from the transformed plant according to Claim 51, wherein said seed contains said nucleotide sequence